



## University Physics I (PHYS 2054)

**Course Syllabus:** PHYS 2054 – University Physics I

**Instructor:** Dr. Kevin Cornelius, JSC 316, [corneliusk@obu.edu](mailto:corneliusk@obu.edu)  
Office: 870-245-5407  
*Office hours posted on office door*  
Course website: <http://plaza.obu.edu/corneliusk/up1/>

**Textbook:** *Physics for Scientists & Engineers, Serway & Jewett, 9<sup>th</sup> ed.*

**Course Description:** This is an introductory college physics course which uses basic calculus in developing some of the fundamental concepts of classical physics. The goal is to provide an understanding of the basic laws of physics behind the translational and rotational motion of objects. This course is primarily geared toward physics and engineering majors, but it is also well suited for other science majors.

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**University Learning Goals:** The University Learning Goals may be found on the University Mission, Vision, and Values webpage at: <http://www.obu.edu/about/vision-mission-and-values/>

### Departmental Learning Objectives:

- Objective 1** - To gain an understanding of the history and knowledge of physics and the physics principles that shape our world. **ULG 1, 2, 5, 6**
- Objective 2** - To develop problem solving and critical thinking skills. **ULG 1, 5, 6**
- Objective 3** - To develop insight into the scientific process by making connections between ideas and elements not just within physics, but within all disciplines. **ULG 3, 4, 6**
- Objective 4** - To gain applied experience through hands-on learning in a lab setting or in research. **ULG 1, 2, 6**

### Student Learning Outcomes:

**At the end of this course, students will be able to demonstrate a proficiency to:**

1. Demonstrate a working knowledge of kinematics. **DLO 1, 2**
2. Demonstrate a working knowledge of vectors. **DLO 1, 2**
3. Demonstrate a working knowledge of Newton's Laws of Motion & Gravity. **DLO 1, 2**
4. Apply Newton's Laws of motion to simple and complex systems. **DLO 2, 3**
5. Demonstrate a working knowledge of Energy and Momentum. **DLO 1, 2**
6. Apply Energy and momentum conservation laws to model simple and complex systems. **DLO 2, 3**
7. Demonstrate a working knowledge of rotational kinematics. **DLO 1, 2**
8. Apply rotational dynamics laws to simple and complex systems. **DLO 2, 3**
9. Demonstrate a working knowledge wave phenomena and models. **DLO 1, 2**
10. Apply wave motion models to simple and complex systems. **DLO 2, 3**
11. Apply mechanics principles during hands-on instruction in a laboratory setting. **DLO 4**



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### Areas of Study:

Kinematics of Motion	(Ch. 1-4)	
Newton's Laws/Gravitation	(Ch. 5, 13)	
Work, Energy and Momentum	(Ch. 7-9)	
Rotational Motion	(Ch. 6, 10-11)	
Waves*	(Ch. 15-18)	<b>Final: Fri., Dec. 16<sup>th</sup> @ 8:00 am</b>

### Homework:

Small homework sets will be assigned regularly during the course of the semester. These assignments will be due at the beginning of class on the day specified. **Homework turned in after the due date will receive a onetime 25% deduction and no credit (0%) if it is turned in after the homework set has been returned to the class. Procrastinate at your own risk!**

It is expected that all students do their own work. Software, such as Mathcad, may be used so long as a printout of the work done is included with the homework. **No work shown = No credit given!**

\*\* Extra credit reading summaries from the book will be accepted up until the day the capstone over that particular area of study section is due. *(These are listed on the course website)*

### Capstones:

Capstone assignments will be given at the end of each major section of the study as listed above. These integrated assignments will require students to solve more advanced problems involving real world situations or practical applications.

### Grading:

Grades will be determined from the following areas:

Homework:	35%
Capstones:	45%
Labs:	20%

**Grades will NOT be posted.** Come see me anytime for your current grade.

**A = 100% – 90%    B = 89% – 80 %    C = 79% – 70 %    D = 69% – 60 %    F < 60%**

### Absences:

*If you can pass this class without showing up, power to ya!* However, don't come by my office and expect to get help on any assignments *if* you have not been showing up for class. Your success in our program is of great concern to me, but part of that success is you behaving like a responsible adult.

### No Class:

There will be **NO** classes on the following dates:

**Labor Day: Sept. 5, Fall Break: Oct. 20 – 21, Thanksgiving: Nov 23 – 25.**



### **Covenant on Academic Honor:**

Students at Ouachita are obligated to uphold the Covenant on Academic Honor, which reads in part, "I will refrain from all forms of academic dishonesty, and I will act responsibly when confronted with the knowledge of such behavior." For the possible consequences of any violation of this covenant, please see **The Tiger Handbook**.

### **Americans with Disabilities Act:**

Ouachita Baptist University is committed to extending access and opportunity to those who have disabilities. To request modifications or accommodations due to a disabling condition, or for a copy of the University policy concerning modifications or accommodations, contact Dan Jarboe, University Counselor and ADA/504 Coordinator, in the Student Services Office. His office is located in Evans Student Center and the telephone number is 245-5591. You may also email the University Counselor and ADA/504 Coordinator at [jarboed@obu.edu](mailto:jarboed@obu.edu).

### **Cell Phone/Laptop Policy:**

Any individual who is caught using their cell phone during class or their laptop in an inappropriate way, the **CLASS** will be given **ONE** warning. After that, any additional violations will result in the lowering of a person's class average by one letter grade.

### **Tips for Success:**

1. Read the textbook. This will provide a second point of view of the material covered in class.
2. Solve problems. Physics is a performance discipline just like athletics or music. It is not a subject that can be learned solely through reading, regular practice is required. Work through the examples for the current chapter in the textbook and as many additional odd numbered exercises at the end of each chapter as possible for which the answers are provided.
3. Get help. If you have tried steps one and two and are still having problems, get help. A tutoring schedule will be posted outside of the Physics Department offices. This service is free. You should also talk to your professor. Your difficulties are probably not as big as you think.
4. Turn in homework and labs on time. Some credit is better than none at all.
5. Take good notes.
6. For optimal learning, recopy your notes after each lecture. Understanding may not come during class because information is coming hard and fast, but valuable insight often occurs as you go over the material again. This is also an excellent tool in preparing for tests.